

# AQA Computer Science A Level

## 4.10 Fundamentals of databases

### Flashcards



# Define data model



## Define data model

An abstract model of which things to store and what information about them should be recorded



# Define attribute




# Define attribute

## A characteristic of an entity




# Write an entity description for this database

Table: Vehicles		
Registration 	Age	YearManufactured
WX61 YCC	7	2011
YK10 XBE	8	2010
ND62 ERL	6	2012



# Write an entity description for this database

Table: Vehicles		
Registration 	Age	YearManufactured
WX61 YCC	7	2011
YK10 XBE	8	2010
ND62 ERL	6	2012

Vehicles(Registration, Age, YearManufactured)



Name the three possible degrees of relationship between tables in a database



Name the three possible degrees of relationship between tables in a database

One-to-one

One-to-many

Many-to-many



# Define entity



## Define entity

A thing about which data is to be stored



What name is given to an attribute which can uniquely identify each attribute in a table

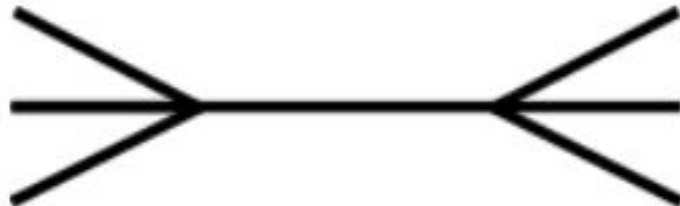


What name is given to an attribute which can uniquely identify each attribute in a table

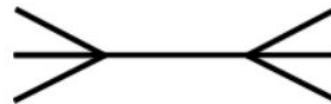
Entity identifier / primary key



Which degree of relationship is represented by this connector?



Which degree of relationship is represented by this connector?



Many-to-many



# Why are databases normalised?



# Why are databases normalised?

So that they can be at their most efficient without any compromise to the integrity of their data



What name is given to a primary key formed from multiple different attributes?



What name is given to a primary key formed from multiple different attributes?

Composite primary key



What name is given to the new table created when forming a many-to-many relationship?



What name is given to the new table created when forming a many-to-many relationship?

Link table



Which form of normalisation can be described as follows:

*All non-key attributes depend on the key, the whole key and nothing but the key*



Which form of normalisation can be described as follows: *All non-key attributes depend on the key, the whole key and nothing but the key*

Third normal form (3NF)




Which declarative language is used to query databases?



Which declarative language is used to query databases?

Server query language (SQL)



Table: Vehicles		
Registration 	Age	YearManufactured

Write a SQL command to create this database table



# Write a SQL command to create the database table

```
CREATE TABLE Vehicles (  
    Registration CHAR(8),  
    Age INT(5),  
    YearManufactured YEAR,  
    PRIMARY KEY (Registration)  
)
```


Assumes all registrations are eight characters in length. A VARCHAR could have been used.

Assumes that vehicles are no older than 31 years.



Write a SQL command that would return  
“2010” from this database


Table: Vehicles

Registration 	Age	YearManufactured
BN61 YCZ	6	2011
ED10 XBL	7	2010
LN62 ERR	5	2012



Write a SQL command that would return “2010” from this database

Table: Vehicles

Registration 	Age	YearManufactured
BN61 YCZ	6	2011
ED10 XBL	7	2010
LN62 ERR	5	2012

```
SELECT YearManufactured FROM Vehicles WHERE REgistration = "ED10 XBL"
```



Write a SQL statement to add the following information to the database

Registration: RD63 OLE

Age: 5

YearManufactured: 2013



Write a SQL statement to add the information to the database

```
INSERT INTO Vehicles VALUES ("RD63 OLE", 5, 2013)
```



Which of the following commands would return all information from the database?

**A:** SELECT ALL FROM Vehicles

**B:** FROM Vehicles SELECT EVERYTHING

**C:** SELECT \* FROM Vehicles



Which of the commands would return all information from the database?

C



# What is the role of a client server database?



What is the role of a client server database?

To provide simultaneous access to a database for multiple clients



What problem occurs when different users attempt to access the same field in a client server database simultaneously?



What problem occurs when different users attempt to access the same field in a client server database simultaneously?

Concurrent access



In which form of normalisation are partial key dependencies removed?



In which form of normalisation are partial key dependencies removed?

Second normal form (2NF)



Name three ways of managing  
concurrent access



# Name three ways of managing concurrent access

Three from:

- Record locks
- Serialisation
- Timestamp ordering
- Commitment ordering

